ASTR 1120/2030L : 2015 Spring

In this 1 hour lab course, I will introduce some essential python programming skills. In modern scientific endeavors, a good programming skill is an essential skill to have for a successful scientist. The course will emphasize hand-on programming experience and it will ask you to finish 10 small programming projects.

**Grading Policy**

Final grading will be entirely based on 10 projects. These projects will be announced during the class and posted through the eLC Dropbox. Submit your final work through eLC. Each project will be graded as pass/fail. Based on the number of "passed" projects ($N_{\text{PASS}}$), final letter grades will be given as follows. Project due dates are one week from the assignment unless announced otherwise.

<table>
<thead>
<tr>
<th>Final Grades</th>
<th>$N_{\text{PASS}}$</th>
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</thead>
<tbody>
<tr>
<td>A</td>
<td>$N_{\text{PASS}} \geq 7$</td>
</tr>
<tr>
<td>B</td>
<td>$5 \leq N_{\text{PASS}} &lt; 7$</td>
</tr>
<tr>
<td>C</td>
<td>$3 \leq N_{\text{PASS}} &lt; 5$</td>
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<tr>
<td>D</td>
<td>$N_{\text{PASS}} &lt; 3$</td>
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**Attendance**

Will not be tracked.

**Packages you need to install**

- python 2.7.X
- ipython
- matplotlib

**Tentative List of Projects**

1. First python script with a function
2. Data I/O : Read/Write column-wise data
3. Simple X-Y plot with axis labels, graph title, and legends
4. Multi axes plots + inset plot
5. Using packages I: Fourier Transform
6. Using packages II: Cluster analysis
7. Class
8. 2D Animation
9. 3D plot
10. 3D animation